Group A Occupancy
Shaft Report
(See Note Numbers 1 and 2 at the End of This Document)

CBC Provisions	IBC Provisions	Analysis	Actions
303.6 Shaft and Exit Enclosures. Exits shall be enclosed as specified in Chapter 10.	**1019.1 Enclosures required.** Interior exit stairways and interior exit ramps shall be enclosed with fire barriers.	The general references accomplish the same task of referring to detailed sections and chapters.	
303.6 Shaft and Exit Enclosures. Elevator shafts, vent shafts and other vertical openings shall be enclosed and the enclosure shall be as specified in Section 711.	**707.1 General.** The provisions of this section shall apply to vertical shafts where such shafts are required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies.	The general references accomplish the same task of referring to detailed sections and chapters.	
EXIT ENCLOSURES			
1005.3.3 Exit enclosures. **1005.3.3.1 General.** Exit enclosures serving as an exit in a means of egress system shall comply with the requirements of Section 1005.3.3.	**VERTICAL EXIT ENCLOSURES** **1019.1 Enclosures required.** Interior exit stairways and interior exit ramps shall be enclosed with fire barriers.		
1005.3.3.1 General. Exit enclosures shall not be used for any purpose other than as a means of egress.	**1019.1 Enclosures required.** An exit enclosure shall not be used for any purpose other than means of egress.		

1005.3.3.2 Construction. Exit enclosures shall be of fire-resistive construction as follows: 1. In buildings of other than Type I-or Type II-F.R. construction and less than four stories in height, exit enclosures shall not be of less than one-hour fire-resistive construction. 2. In buildings of Type I- or Type II-F.R. construction of any height, exit enclosures shall not be of less than two-hour fire-resistive construction. In buildings of any type of construction and four or more stories in height, exit enclosures shall not be of less than two-hour fire-resistive construction, EXCEPTION: In sprinkler-protected parking garages restricted to the storage of private or pleasure-type motor vehicles, exit enclosures may be enclosed with glazing meeting the requirements of Sections 713.7, 713.8 and 713.9. Exit enclosures in buildings of Type I or II construction shall be of noncombustible construction except where combustible materials are permitted in applicable building elements by other provisions of this code. Exit enclosures in buildings of Type III, IV or V construction may be of combustible or noncombustible construction.	**1019.1 Enclosures required.** Exit enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Exceptions: 1. In other than Group H and I occupancies, a stairway serving an occupant load of less than 10 not more than one story above the level of exit discharge is not required to be enclosed. 2. Exits in buildings of Group A-5 where all portions of the means of egress are essentially open to the outside need not be enclosed. 4. Stairways that are not a required means of egress element are not required to be enclosed where such stairways comply with Section 707.2. 7. Means of egress stairways as required by Section 410.5.4 are not required to be enclosed. 8. In other than occupancy Groups H and I, a maximum of 50 percent of egress stairways serving one adjacent floor are not required to be enclosed, provided at least two means of egress are provided from both floors served by the unenclosed stairways. Any two such interconnected floors shall not be open to other floors.		

Interior stairways, ramps or escalators shall be enclosed as specified in this section. EXCEPTIONS: 1. In other than Groups H and I Occupancies, an exit enclosure need not be provided for a stairway, ramp or escalator serving only one adjacent floor. Any two such atmospherically interconnected floors shall not communicate with other floors.			

	9. In other than occupancy Groups H and I, interior egress stairways serving only the first and second in accordance with Section 903.3.1.1 are not required to be enclosed, provided at least two means of egress are provided from both floors served by the unenclosed stairways. Such interconnected stories shall not be open to other stories.		
	1019.1 Enclosures required. Enclosures shall be constructed as fire barriers in accordance with Section 706.		
1005.3.3.5 Openings and penetrations. Openings in exit enclosures shall be limited to those necessary for egress from normally occupied spaces into the enclosure and those necessary for egress from the enclosure. EXCEPTION: Exit enclosures on the exterior walls of buildings may have unprotected openings to the exterior when permitted by Table 5-A.	**1019.1.1 Openings and penetrations.** Except as permitted in Section 402.4.6, openings in exit enclosures other than unexposed exterior openings shall be limited to those necessary for exit access to the enclosure from normally occupied spaces and for egress from the enclosure. Where interior exit enclosures are extended to the exterior of a building by an exit passageway, the door assembly from the exit enclosure to the exit passageway shall be protected by a fire door conforming to the requirements in Section 715.3. Fire door assemblies in exit enclosures shall comply with Section 715.3.4.		

711.4 Protection of Openings. Openings into a shaft enclosure shall be protected by a self-closing or an automatic-closing fire assembly conforming to Section 713 and having a fire-protection rating of one hour for openings through one-hour fire-resistive walls and one and one-half hours for openings through two-hour fire-resistive walls. **1005.3.3.5 Openings and penetrations.** Such doors shall be maintained self-closing or shall be automatic closing by actuation of a smoke detector as specified in Section 713.2. All hold-open devices shall be listed for the intended purpose and shall close or release the fire assembly to the closed position in the event of a power failure. The maximum transmitted temperature end point for such doors shall not exceed 450°F (232°C) above ambient at the end of 30 minutes of the fire exposure specified in UBC Standard 7-2.	**707.7 Openings.** Openings in a shaft enclosure shall be protected in accordance with Section 715 as required for fire barriers. Such openings shall be self-closing or automatic-closing by smoke detection. **TABLE 715.3** **EXIT ENCLOSURE SHAFT RATING** — **OPENING PROTECTION** **2 HR** — **1 1/2 HR** **1 HR** — **1 HR** **715.3.4 Doors in vertical exit enclosures and exit passageways.** Fire door assemblies in vertical exit enclosures and exit passageways shall have a maximum transmitted temperature end point of not more than 450°F (232°C) above ambient at the end of 30 minutes of standard fire test exposure. Exception: The maximum transmitted temperature end point is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.		

1019.1.2 Penetrations. Penetrations into and openings through an exit enclosure are prohibited except for required exit doors, equipment and ductwork necessary for inde-pendent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit enclosure and terminating at a steel box not exceeding 16 square inches. Such penetrations shall be protected in accordance with Section 712.	**1019.1.2 Penetrations.** Penetrations into and openings through an exit enclosure are prohibited except for required exit doors, equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit enclosure and terminating at a steel box not exceeding 16 square inches.		
1019.1.2 Penetrations. There shall be no penetrations or communication openings, whether protected or not, between adjacent exit enclosures.	There shall be no penetrations or communication openings, whether protected or not, between adjacent exit enclosures.		
713,7 Glazed Openings in Fire Doors. The area of glazed openings in a fire door required to have one-and one-half-hour or one-hour fire-resistive rating shall be limited to 100 square inches with a minimum dimension of 4 inches. **713.9 Glazing.** Glazing materials and glass block assemblies shall be qualified by tests in accordance with UBC Standard 7-2 (for fire doors) or UBC Standard 7-4 (for fire windows) as appropriate for the use, and they shall be labeled for the required fire protection rating and installed in accordance with their listing.	**715.3.4.1 Glazing in doors.** Fire-protection-rated glazing in excess of 100 square inches shall be permitted in fire door assemblies when tested in accordance with NFPA 252 as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature end point of *450°F* (232°C) in accordance with Section 715.3.4. Exception: The maximum transmitted temperature end point is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.		

	1019.1.3 Ventilation. Equipment and ductwork for exit enclosure ventilation shall comply with one of the following items: 1. Such equipment and ductwork shall be located exterior to the building and shall be directly connected to the exit enclosure by ductwork enclosed in construction as required for shafts. 2. Where such equipment and ductwork is located within the exit enclosure, the intake air shall be taken directly from the outdoors and the exhaust air shall be discharged directly to the outdoors, or such air shall be conveyed through ducts enclosed in construction as required for shafts. 3. Where located within the building, such equipment and ductwork shall be separated from the remainder of the building, including other mechanical equipment, with construction as required for shafts. In each case, openings into the fire-resistance-rated construction shall be limited to those needed for maintenance and operation and shall be protected by self-closing fire-resistance-rated devices in accordance with Chapter 7 for enclosure wall opening protectives. Exit enclosure ventilation systems shall be independent of other building ventilation systems.		

SHAFT ENCLOSURES			
711.1 General. Openings through floors shall be enclosed in a shaft enclosure of fire-resistive construction having the time period set forth in Table 6-A for "shaft enclosures" except as permitted in Sections 711.3, 711.5 and 711.6. **Table 6-A** **SHAFT ENCLOSURES** **Type I FR 2** **Type II FR 2** **All other types 1** Footnote to table to see sections 304.6, 306.6 and 711 for special provisions.	**707.1 General.** The provisions of this section shall apply to vertical shafts where such shafts are required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. **707.4 Fire-resistance rating.** Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall be constructed as fire barriers in accordance with Section 706. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.		
711.3 Special Provision. In other than Group I Occupancies, openings that penetrate only one floor and are not connected with openings communicating with other stories or basements and that are not concealed within building construction assemblies need not be enclosed. In one- and two-story buildings other than Group I Occupancies, gas vents, ducts, piping and factory-built chimneys that extend through not more than two floors need not be enclosed, provided the openings around the penetrations are firestopped at each floor. EXCEPTION: BW gas vents installed in accordance with their listing.	**707.2 Shaft enclosure required.** Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this section. Exceptions: 1. A shaft enclosure is not required for openings totally within an individual residential dwelling unit and connecting four stories or less. 2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or stairway which is riot a portion of the means of egress protected according to Item 2.1 or 2.2: 2.1. Where the area of the floor opening between		

Gas vents and factory-built chimneys shall be protected as required by the Mechanical Code. Walls containing gas vents or noncombustible piping that pass through three floors or less need not provide the fire-resistance rating specified in Table 6-A for “shaft enclosures,” provided the annular space around the vents or piping is filled at each floor or ceiling with noncombustible materials. EXCEPTION: BW gas vents installed in accordance with their listing. Openings made through a floor for penetrations such as cables, cable trays, conduit, pipes or tubing that are protected with approved through-penetration fire stops to provide the same degree of fire resistance as the floor construction need not be enclosed.	stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories. 2.2. Where the opening is protected by approved power-operated automatic shutters at every floor penetrated. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.11 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute *(152.4* mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release therefrom. 3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable, and vents protected in accordance with Section 712.4. 4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the *International Mechanical Code.* 5. A shaft enclosure is not required for floor openings complying with the provisions for covered malls or atriums. 6. A shaft enclosure is not required for approved masonry chimneys, where annular space protection is provided at each floor level in accordance with		

	Section 717.2.5. 7. In other than Groups 1-2 and 1-3, a shaft enclosure is not required for a floor opening that complies with the following: 7.1 Does not connect more than two stories. 7.2 Is not part of the required means of egress system except as permitted iii Section 1019.1. 7.3 Is not concealed within the building construction. 7.4 Is not open to a corridor in Group I and R occupancies. 7.5 Is not open to a corridor on nonsprinklered floors in any occupancy. 7.6 Is separated from floor openings serving other floors by construction conforming to required shaft enclosures. 8. A shaft enclosure is not required for automobile ramps in open parking garages and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively. 9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below. 10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713. 11. Where permitted by other sections of this code.		

711.2 Extent of Enclosures. Shaft enclosures shall extend from the lowest floor opening through successive floor openings and shall be enclosed at the top and bottom. EXCEPTIONS: 1. Shafts extending through or to the underside of the roof sheathing, deck or slab need not be enclosed at the top. 2. Shafts need not be enclosed at the bottom when protected by fire dampers conforming to approved recognized standards, installed at the lowest floor level within the shaft enclosure. Shaft enclosures shall be constructed to continuously maintain the required fire-resistive integrity.	**707.5 Continuity.** Shaft enclosure walls shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof slab or deck above and shall be securely attached thereto. These walls shall be continuous through concealed spaces such as the space above a suspended ceiling. The supporting construction shall be protected to afford the required fire-resistance rating of the element supported. Hollow vertical spaces within the shaft enclosure construction wall shall be firestopped at every floor level. **707.11 Enclosure at the bottom.** Shafts that do not extend to the bottom of the building or structure shall: 1. Be enclosed at the lowest level with construction of the same fire-resistance rating as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure; 2. Terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by construction having a fire-resistance rating and opening protectives at least equal to the protection required for the shaft enclosure; or 3. Be protected by approved fire dampers installed in accordance with their listing at the lowest floor level within the shaft enclosure. Exceptions: 1. The fire-resistance-rated room separation is not required provided there are no openings in or penetrations of the shaft enclosure to the interior of		

	the building except at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 717.3.1 for draftstopping, or the room shall be provided with an approved automatic fire suppression system. 2. A shaft enclosure containing a refuse chute or laundry chute shall not be used for any other purpose and shall terminate in a room protected in accordance with Section 707.13.4. 3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required provided there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building. **707.12 Enclosure at the top.** A shaft enclosure that does not extend to the underside of the roof deck of the building shall be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure.		

711.4 Protection of Openings. Openings into a shaft enclosure shall be protected by a self-closing or an automatic-closing fire assembly conforming to Section 713 and having a fire-protection rating of one hour for openings through one-hour fire-resistive walls and one and one-half hours for openings through two-hour fire-resistive walls. EXCEPTIONS: 1. Openings to the exterior may be unprotected when permitted by Table 5-A. 2. Openings protected by through-penetration fire stops to provide the same degree of fire resistance as the shaft enclosure. See Sections 709 and 710. 3. Noncombustible ducts, vents or chimneys used to convey vapors, dusts or combustion products may penetrate the enclosure at the bottom. Openings in shaft enclosures penetrating smoke barriers shall be further protected by smoke dampers conforming with approved recognized standards. EXCEPTIONS: 1. Exhaust-only openings serving continuously operating fans and protected using the provisions of Chapter 9. 2. Smoke dampers are not required when their operation would interfere with the function of a smoke-control system.	**707.7 Openings.** Openings in a shaft enclosure shall be protected in accordance with Section 715 as required for fire barriers. Such openings shall be self-closing or automatic-closing by smoke detection. **707.7.1 Prohibited openings.** Openings other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures. **TABLE 715.3** **SHAFT ENCLOSURE RATING** / **OPENING PROTECTION** **2 HR** / **1 1/2 HR** **1 HR** / **1 HR**		

711.6 Chute and Dumbwaiter Shafts. In buildings of Type V construction, chutes and dumbwaiter shafts with a cross-sectional area of not more than 9 square feet may be either of approved fire-resistive wall construction or may have the inside layers of the approved fire-resistive assembly replaced by a lining of not less than 0.019-inch No. 26 galvanized sheet gage metal with all joints locklapped. The outside layers of the wall shall be as required for the approved construction. All openings into any such enclosure shall be protected by not less than a self-closing solid-wood door 1 3/8 inches thick or equivalent. **711.5 Rubbish and Linen Chute Termination Rooms.** In other than Group R, Division 3 Occupancies, rubbish and linen chutes shall terminate in rooms separated from the remainder of the building by an occupancy separation having the same fire resistance as required for the shaft enclosure, but not less than one hour. Openings into chutes and chute termination rooms shall not be located in corridors or stairways. For sprinklers, see Section 904.2.2.	**797.13 Refuse and laundry chutes.** Refuse and laundry chutes, access and termination rooms and incinerator rooms shall meet the requirements of Sections 707.13.1 through 707.13.6. **707.13.1 Refuse and laundry chute enclosures.** A shaft enclosure containing a refuse or laundry chute shall not be used for any other purpose and shall be enclosed in accordance with Section 707.4. Openings into the shaft, including those from access rooms and termination rooms, shall be protected in accordance with this section and Section 715. Openings into chutes shall not be located in exit access corridors. Opening protectives shall be self-closing or automatic-closing upon the actuation of a smoke detector installed in accordance with Section 907.10, except that heat-activated closing devices shall be permitted between the shaft and the termination room. **707.13.2 Materials.** A shaft enclosure containing a refuse or laundry chute shall be constructed of materials as permitted by the building type of construction. **707.13.3 Refuse and laundry chute access rooms.** Access openings for refuse and laundry chutes shall be located in rooms or compartments completely enclosed by construction that has a fire-resistance rating of not less than 1 hour and openings into the access rooms shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour and shall be self-closing or automatic-closing upon the detection of smoke.		

	707.13.4 Termination room. Refuse and laundry chutes shall discharge into an enclosed room completely separated from the remainder of the building by construction that has a fire-resistance rating of not less than 1 hour and openings into the termination room shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour and shall be self-closing or automatic-closing upon the detection of smoke. Refuse chutes shall not terminate in an incinerator room. Refuse and laundry rooms that are not provided with chutes need only comply with Table 302.1.1. **707.13.5 Incinerator room.** Incinerator rooms shall comply with Table 302.1.1. **707.13.6 Automatic fire sprinkler system.** An approved automatic fire sprinkler system shall be installed in accordance with Section 903.2.10.2.		

1. The rating of the shafts in buildings is primarily driven by the number of stories and type of construction. Generally, the type of construction is driven by the occupancy group and the allowable area, number of stories and height. The CBC would get the 2 hr shafts sooner than the IBC in terms of the allowable area, number of stories and height.
2. Certain exceptions within the IBC for installation of automatic sprinkler systems do not appear in the CBC.

With the exception of the above, once the rating is established, the requirements within the two documents appear to be fairly close.